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ABSTRACT

Designed to help community colleges increase efficiency and make the best use of depleted funds, this monograph describes innovative and successful strategies currently in place at colleges to improve effectiveness. The innovative practices are organized into five broad categories approximating a "typical" community college's distribution of responsibilities, including 8 strategies related to business operations and facilities; 24 focusing on curriculum and instruction; 15 related to networks, technology training, and distance education; 5 in the area of planning and budgeting; and 11 concerned with student services. For each strategy, a brief description is provided, along with a discussion of the benefits accrued by the college and a college contact person. Sample strategies include the following: (1) a joint-use library constructed by Colorado's Front Range Community College and the cities of Westminster and Fort Collins; (2) a part-time practical nursing program established at Indiana's Ivy Tech State College to provide access to working nursing students and increase enrollment; (3) a dental hygiene program at Wisconsin's Northcentral Technical College employing interactive television and sharing resources among dental associations and other colleges; (4) an effort at Illinois' Parkland College to link strategic goals to the budget; and (5) a computerized assessment tool used by counselors at Central Florida Community College to reduce time spent searching for student records and progress reports. An index of colleges is included. (HAA)

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How to Do More with Less

Community College Innovations to Increase Efficiency and Reduce Costs

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League for Innovation in the Community College

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A Publication of the
Alliance for Community College Innovation

How to Do More with Less

Community College Innovations to Increase Efficiency and Reduce Costs

Brenda Beckman, Editor

League for Innovation in the Community College
June 1996

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How to Do More with Less

Community College Innovations to Increase Efficiency and Reduce Costs

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INTRODUCTION

This monograph was designed to enable community colleges to share some of their most successful and innovativestrategies for stretching seriously depleted funds. Over the past several years, most community colleges have faced dwindling resources. While costs and, in some cases, enrollments continue to rise, many institutions have been forced to downsize—resulting in fewer people to tackle the challenges created. Students also seem to be less prepared to do college-level work than at any time in the history of community colleges, creating an urgent need for more intensive and individualized assistance if these underprepared students are to succeed. At the same time, technology is placing significant demands on college resources to address escalating needs for equipment and software as well as vital staff development. In addition, almost all community colleges are now more than a quarter-century old and, in many cases, have aging facilities—an expensive liability. If there was ever a time in the life of community colleges to "do more with less," this is it!

Faced with this apparently gloomy picture, community colleges have tapped into the rich reservoir of commitment and creativity of their administrators, faculty, and staff and continued to serve students effectively; some have even improved student services.

In the fall of 1995, the League for Innovation in the Community College invited members of its Alliance for Community College Innovation (ACCI) to submit brief descriptions of their most measurably successful and effective innovations designed to "do more with less." The response was heartwarming. Submissions came from all over the United States, from coast to coast and border to border; they came from several Canadian provinces and from the United Kingdom. They include a fascinating array of innovations. Some are complex, institutionwide innovations involving all elements of the college; others are small-scale or department-specific, elegant in their simplicity. Those selected for inclusion in this monograph have met the criteria of benefiting the college by increasing productivity or reducing costs (in terms of time, money, personnel, or procedural steps). They are also replicable by other institutions.

An impressive number of the ideas selected for inclusion have been externally recognized as particularly innovative by professional organizations and/or the press. These various forms of recognition give additional credibility to the efforts of community colleges to stretch public dollars to the limits of human ingenuity, while maintaining high standards.

The organization of this document presented a variety of challenges. For example, questions arose as to whether both large and small innovations should be included. It was decided that giving students access to grades by telephone was, in its own way, as important as a full-scale institutional reorganization—provided it met the criteria of increasing productivity and/or lowering costs.

For simplicity's sake, the innovations have been organized into broad categories approximating a "typical" community college's distribution of responsibilities, thus helping the reader find items that most clearly relate to his or her area of responsibility. Most innovations fit comfortably into one of the categories of Business Operations and Facilities; Curriculum and Instruction; Technology, Networks, and Distance Education; Planning and Budgeting; or Student Services. Not everything fits easily into a single category, however. For example, does a creative academic plan to maintain instructional and other computers and keep them up-to-date belong under business operations—as a collegewide service—or (because it primarily serves the faculty) curriculum and instruction? (The choice made in this case was business operations, on the basis that the approach provided collegewide rather than specifically instructional support.) However, because some innovations cross lines of responsibility, the category fit may seem slightly awkward in one or two cases. Nevertheless, the ideas in the innovations should be easy to find in the Table of Contents and the brevity of the descriptions is intended to make it possible for the reader to peruse the entire monograph in reasonable time. Detail is limited in the descriptions, and a contact name has been provided for those who wish to learn more about any innovation. The institutions from which this fund of creative examples was drawn are listed in the Index.

The efforts of those who committed the time to write and submit descriptions of "how to do more with less" are deeply appreciated. These many administrators, faculty, and staff have made a significant contribution to all community colleges through their willingness to share ideas. To each of them is extended sincere appreciation and thanks.

Thanks go also to Suzanne Lilly, who provided invaluable editorial production assistance in compiling this monograph.

Brenda Beckman, Editor

Business Operations and Facilities

Building a Library through Community Partnership

Front Range Community College's (Colorado) Westminster Campus library, established 17 years ago, had long since outgrown its available space. At its Larimer Campus in Fort Collins City, the college had created a library from two classrooms, but space and budget constraints prevented it from growing into an adequate facility. Due to unprecedented population growth in the college's service area, both libraries faced the need to service growing numbers of students.

Local public libraries also faced high demand for additional branches. In a political climate where voters demanded top value for scarce dollars, the college approached the cities of Westminster and Fort Collins with the idea of establishing joint-use libraries. All parties saw major potential benefits and mutually acceptable plans soon emerged. The City of Westminster approved an intergovernmental agreement authorizing the Westminster Campus project, and the Fort Collins City Council voted to prepare an agreement for the Larimer facility.

By sharing construction costs of the joint-use facility, each partner gained substantially more space, as well as funding for books and equipment that would have been impossible had each agency tried to provide a separate facility.

Benefits to the College

- Building a single large facility rather than several smaller ones resulted in significant economies of scale.
- The city of Fort Collins estimated that building a library in the southern part of the city, where the FRCC campus is located, would have cost up to $6 million; the city's contribution to the joint-use library is approximately $2 million, a savings passed on to the college.
- Beyond construction, ongoing savings are anticipated in materials costs. For example, where two libraries would each have had to buy certain important books, the joint facility allows the purchase of a single copy.
- The Westminster library will be the largest library between Denver and Boulder and is expected to draw patrons from throughout the north metropolitan area.
- Having a quasi-public library building on the campus will bring the library-going public to the college regularly; and children will have the opportunity to grow up with the college as part of their lives.

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Collaboratively Established Technology and Engineering Center

Burlington County College (New Jersey) and the New Jersey Institute of Technology (NJIT) teamed up to design, build, and operate southern New Jersey's first engineering school—the Technology and Engineering Center (TEC). Prior to the opening of the new center, students from the southern half of the state had to travel into Pennsylvania or drive a minimum of one-and-a-half hours to pursue studies in engineering. The TEC opened with much fanfare in September 1995. Burlington County College (BCC), a comprehensive community college, and the NJIT, the state's premier engineering and computer science research university, obtained $11 million in state funds to build the TEC on a former farm in the heart of Burlington County's high-technology corridor. The county government purchased the land for $4.5 million.

What makes the TEC unique is the manner in which it has been designed, funded, and operated. The two institutions, sharing personnel and resources, established joint committees for financial planning, academic programs, marketing, and operations. Through these efforts and coordinated outreach to local industry, the TEC opened with a wide range of academic programs at the associate, baccalaureate, and master's degree levels in fields such as engineering, electronics engineering, computer information systems, engineering management, and mathematics. Continuing professional development programs and graduate certificate programs are also offered. The 52,000 square-foot building includes multimedia classrooms, a technical library, full-service bookstore, and cafeteria, as well as state-of-the-art engineering, graphic imaging, and computer labs. Special features include 25 donated graphics workstations and a fully equipped computer lab. Initial enrollments far exceeded projections, and many business groups and professional associations are already conducting meetings and special events at the center.

Without the combined human and financial resources

of BCC and NJIT, the project would not have been economically feasible. The two schools shared operating costs, facilities, and faculty, with students benefiting from the strengths and specialties of both institutions.

Benefits to the College

- The partnership between BCC and NJIT resulted in efficiencies in the purchase of computers and engineering equipment.
- The unique nature and high profile of the project generated special interest among hardware and software suppliers.
- Acquisition costs for the engineering and computer labs, marketing costs to recruit students and reach out to business leaders, library purchases, and other costs to build and operate the center were shared by both schools.
- The joint program has become a reality despite the fact that neither school would have been able to shoulder the financial burden of the project alone.
- Because BCC has a university partner, its students can continue their upper-division studies at the same location.

External Recognition, Articles, and Presentations

- Hewlett-Packard Corporation, recognizing the innovative nature of the project, presented a plaque to BCC and NJIT at the center's dedication ceremony in 1995.
- Donor organizations including Silicon Graphics have conducted special equipment demonstrations for community leaders at the center.

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Energy Conservation

In March of 1991, Lee College (Texas) recognized a need to change its energy-use patterns. Faced with an aging mechanical infrastructure, the college diligently sought a way to fund new energy-efficient equipment to heat, cool, and illuminate the college's 450,000 square feet of classroom and office space. The solution came in the form of a Department of Energy Institutional Conservation Program (ICP) grant that provided funds to implement three energy-conservation measures. The project was completed in January 1994 and has been in operation since.

The first energy conservation measure involved the relamping of every fluorescent fixture on campus with energy-efficient electronic ballasts, reflectors, and lamps. The second measure reduced natural gas consumption by installing variable air volume adjustment systems in college buildings.

The third measure involved replacement of the college's existing central mechanical plant equipment with a cool storage system which uses an ice-maker chiller to freeze ice in storage tanks during off-peak electrical use hours. A high-efficiency supplemental chiller cools the building during off-peak times; but during peak hours all chillers are turned off, and the college uses the stored ice for cooling.

The ICP grant funded $688,294 of the project's $1.5 million cost. Since 1990, the Houston Lighting and Power Company (HLP) has offered a financial incentive to institutions to use cool storage, because the resultant drop in peak electrical demand reduces the need for the company to build costly new power plants. HLP's incentive provided $245,154.

Benefits to the College

- Energy costs for 1994, the first full year of operation of the new system, were approximately 37 percent less than in 1992 (the last year before the conservation measures were implemented). Savings amounted to $311,845. These savings were achieved despite the fact that there were more cooling-degree days in 1994 than in 1992.
- In 1995, energy consumption was down an additional 20 percent from the previous year.
- Savings from these energy-conservation measures are expected to pay back the college's share of the project by the end of 1996.

External Recognition, Articles, and Presentations

- The Electrical Power Research Institute selected the project as a model for presentation at its annual convention in Houston in 1994.
- The project was nominated for a Best Project award in the Associated General Contractors (Houston Chapter) competition.

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Intrusion Alarm System

Until recently, South Suburban College (Illinois) maintained an around-the-clock security force at the main campus building. Three eight-hour shifts of two security or sworn police personnel patrolled the building on holidays, weekends, and other times when no staff or students were using the facility. It was not uncommon for the college to pay nearly $1,500 in overtime salaries to staff the building on a holiday. In an effort to reduce these costs, the college installed an intrusion alarm system at the start of the 1995 fiscal year.

The alarm system monitors all entrances to the building and major hallway areas. Sensitive to heat and motion, both must be present before the alarm is triggered. In addition, the system will trigger in the event of fire or the presence of water. The system is activated at the end of classes each evening, during holidays, and at any time the college is officially closed. Security personnel who formerly worked the third shift and weekends guarding an empty building were reassigned to patrol the campus during times students and staff were present.

Benefits to the College

- During the first full year of operation, the intrusion alarm system saved the college $64,207 in salaries.

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Low-Cost Marketing Strategy

Scene magazine, a monthly insert in area newspapers, is a cost-effective way to market Central Florida Community College (CFCC) and distribute course schedules. The college relations office creates each issue of the magazine which contains news and features about college programs and personnel—stories often ignored by local media. Three credit and three noncredit course schedules are included during the year. A local newspaper prints the magazine.

Previously, CFCC distributed course schedules by direct mail. *Scene* not only allows for cost-effective distribution of course schedules, it also draws media attention to the school, promoting community awareness of and involvement with the college.

Benefits to the College

- The cost of printing and distributing 971,650 copies of *Scene* was $80,725 as compared to $163,620 for direct mailing the six course schedules.
- CFCC gained wider distribution of its marketing materials.

External Recognition, Articles, and Presentations

- *Scene* has received four "Best Bang for the Buck" awards from the Florida Association of Community Colleges and the National Council of Marketing and Public Relations (NCMPR) District II.
- *Scene* was the focus of well-received presentations at the NCMPR district and national meetings.

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New Approach to "Purchasing" Pianos

During the 1994-95 academic year, working through the college foundation, Central Florida Community College (CFCC) entered into an agreement with a local piano retailer and the Kawai Company to obtain new pianos for the Fine Arts department. Pianos in use at the college at the time were over 25 years old, and no funds were available in the budget to replace them.

The agreement calls for Kawai to supply the college with new pianos annually, at no cost to the institution. CFCC keeps the pianos in tune and in good repair. In exchange for the use of the pianos, the college provides the Kawai Company with a list of alumni and college employees who receive invitations for weekend piano sales held on college property. The sale is also open to the public.

Benefits to the College

- CFCC received seven pianos, valued at more than $100,000, during the first year of the agreement.

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"Slow Fill" Employment Process

In most colleges, salary and benefits dollars comprise the majority of budgeted expenses. At South Suburban College (Illinois), these two categories account for 76 percent of the operating budget. When the college began looking for ways to reduce expenditures, personnel costs were the first to be considered. A plan was developed to reduce personnel costs while retaining current faculty and staff.

Beginning in the 1995 fiscal year, the board of trustees approved the practice of "slow filling" vacant positions. Under this policy, any position which became vacant was not filled for a minimum of two months. In the first year, 32 positions were so vacated and left unfilled for at least 60 days. In addition to the "slow fill" policy, a "no fill" decision evolved in the case of four vacated positions which were found to be nonessential. The "slow fill" policy saved salary and benefits dollars without affecting current college employees.

Benefits to the College

- Savings in salary and benefits amounted to $212,542 in the first year.

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Using Alternative Fuels

Clovis Community College (New Mexico) is participating in a pilot program sponsored by the State Department of Energy, Minerals, and Natural Resources to fund the installation of compressed natural gas (CNG) fuel systems in its fleet of 25 vehicles. The purpose of the project is threefold: to reduce campus-fleet consumption of petroleum-derived motor fuels; to demonstrate CNG-fueled vehicles; and to provide CNG technical training to students enrolled in the Auto Mechanics program. In addition, the conversion of operating vehicles at Clovis is promoting greater public awareness of the potential for using compressed natural gas as an economic and environmentally safe alternative fuel.

Benefits to the College

- The fuel-cost savings derived from the conversion of college fleet vehicles is projected to be $4,000 per vehicle over a seven-year period.
- Students are trained to install compressed natural gas conversion units in vehicles.

External Recognition, Articles, and Presentations

- Clovis Community College was recognized as a pilot site for an alternative-fuels project.
- New Mexico's Department of Energy, Minerals, and Natural Resources awarded the college $4,000 to demonstrate fuel-cost savings, payback calculations, feasibility, and implementation of the project.

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Curriculum and Instruction

Academic Computing Upgrade

Springfield Technical Community College (Massachusetts) uses technically trained alumni as lab technicians to maintain all of the college's academic computing facilities. As a result, Springfield Technical Community College (STCC) has not had to pay for costly maintenance contracts for nearly eight years. Hardware parts are creatively recycled, and equipment life is extended while keeping the labs running at peak performance. As new hardware is acquired, computers are assessed for use in other academic program areas, and either serviced by STCC's technicians and reassigned or "cannibalized" for parts.

Benefits to the College

- The college saves $75,000 to $100,000 annually in maintenance contracts.
- The college saves on equipment costs through recycling.

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Academic Integration

Recognizing the complementary missions of the liberal arts and occupational education programs, Aims Community College (Colorado) underwent comprehensive restructuring to achieve academic integration. Greatly influenced by such factors as public preoccupation with fiscal responsibility; the omnipresence of technology; global marketplace competition; demands for higher workforce skill levels; and cultural diversity, the college integrated the School of Arts and Sciences and the School of Occupational Education.

Restructuring reduced the number of academic units and resulted in merging liberal arts and occupational programs within each unit, minimizing competition between the two programs. Curriculum content and instructional methodology were revised to embrace both theoretical and applied approaches, to initiate cross-discipline teaching, and to create greater transferability within occupational programs.

The continuing education and business/industry training programs were integrated into the academic area. A service center was established to profile job skills and match workers to jobs; and basic skills testing and training for business/industry and work-ready training for fast-track employment preparation were developed. Bridge courses between developmental/remedial education and occupational programs were established. In addition, a newly created International Center supported efforts to integrate international studies into the curriculum.

Among related activities, the Early Childhood Education program was integrated with the college's childcare center to provide a practicum for students as well as day care services for the children of students and staff. A quality improvement initiative led to internal training of staff and implementation of changes to improve quality. A cross-disciplinary advising corps was created, and assessment was expanded to include business/industry and job-specific basic skills training. Multilevel planning and budgeting processes focused on academic initiatives, and teams were created to manage the shared use of equipment, laboratories, and human resources.

Benefits to the College

- Increased use of part-time instructors, reductions in equipment expenditures, elimination of positions, and integration of laboratories amounted to a savings of $1.6 million.
- $570,000 in gifts were received to support childcare program changes, basic skills testing, and to establish the International Center.
- Grant support totaling $425,000 covered other costs and included $315,000 for industry-related training, $90,000 to merge and articulate tech-prep programs in business/marketing, and $20,000 to plan a one-stop Career Center with area schools, businesses, and other agencies.
- Faculty/department/division goals are now included in the institutional planning process, saving time in developing the academic master plan while giving faculty a voice in the process.
- Guidelines and procedures for review of the Arts and Sciences and Occupational Education programs have been developed and integrated into the accreditation process.
- There are fewer conflicts among programs and academic units in the budgeting process.
- Assessment is now centrally located, the process has been computerized, and staff are now cross-trained.
- All advising information is now disseminated through an advising corps, which conducts group orientation and initial advising, freeing faculty for other academic responsibilities.

External Recognition, Articles, and Presentations

- The Quality Improvement Steering Team at Aims Community College received the Quality Team Award from the American Society for Quality Control.
- Computer Information Services faculty were awarded the Aims Community College Foundation Faculty Excellence Team Award.

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Adjunct Faculty Training and Teaching Excellence

In an effort to reduce operating costs, Montgomery County Community College (Pennsylvania) increased the use of part-time faculty. To ensure that the quality of educational programs was maintained, the college offered adjunct faculty a free, 25-hour certificate program to help develop them as effective teachers.

In order to cover the cost of offering the training to adjunct faculty without charge, and in an effort to identify and recruit potential new adjunct faculty, the certificate program was made accessible on a fee basis to part-time faculty from other colleges in the area.

Benefits to the College

- Instructional effectiveness of adjunct faculty has increased.
- Concerns about expanding use of adjunct faculty and time spent correcting problems have diminished.
- Student complaints have decreased.

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Agronomic Demonstration Center

In addition to the college programs and continuing education in agriculture at North Iowa Area Community College (NIACC), the college farm conducts demonstration projects and allows students to apply what they have learned. Like many colleges with farms, NIACC has the challenge of satisfying educational needs while covering operational expenses with revenues. To meet educational commitments and allow for program expansion, college staff have explored mutually beneficial opportunities with private enterprises.

In 1992, following a successful no-till field trial, a partnership was formed with the BASF Corporation. The college manages the farm in a no-till cropping system and BASF contributes financial and service support. Financial support from BASF allows NIACC to expand agricultural programs and establish itself as a resource of no-till farming expertise with the creation of the Agronomic Demonstration Center (ADC). BASF gains public exposure and advances the science of no-till cropping systems (indirectly augmenting product sales). Other agronomy-based companies have recognized the utility of contributing to the demonstration center—in 1995, 25 companies donated products and services to the ADC.

The center has expanded into cooperative demonstration and research projects with the state university, the USDA-ARS, and various private enterprises. Such cooperative efforts enable each organization to effectively develop, demonstrate, and communicate innovations in agricultural technologies and cultural practices to the North Iowa region.

BASF funds the center coordinator's position as well as many crop production and equipment costs. The company also provides personnel for program presentations and supports their per-diem costs.

Benefits to the College

- The state university and extension, and the USDA-ARS are cooperating with the ADC in six field projects.
- Nine private agronomy-based companies are cooperating in other ADC projects.
- The ADC has received donations from 25 private companies in recognition of the ADC's value.

External Recognition, Articles, and Presentations

- The ADC has received considerable media attention from local newspapers and television and from statewide agricultural publications.

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Automated TV Classrooms

In 1993, Metropolitan Community College (Nebraska) established five classrooms with two-way audio and video to provide distance learning courses throughout the college's service area. Initially, a Title III grant provided equipment that required the college to hire an instructor and a technician/TV operator for each session offered. When Title III funding expired, the college was faced with institutionalizing operations costs approximating $66,000 annually. As distance learning offerings had grown to more than 60 hours per week, a large share of the program's operating cost went to personnel—specifically the technicians required during each class session at each of the five sites.

The college's instructional design services staff concluded that the distance learning experience could be enhanced with an "automated" TV classroom. Instructors have been retrained on the automated system and appreciate their expanded control of the classroom. Technical support staff now concentrate on keeping the overall system running smoothly. A technician and a broadcast engineer are available for emergencies.

Benefits to the College

- For a one-time cost of $15,000 per TV classroom, instructors benefit from user-friendly touch-screen controls, fixed camera settings, a variety of visuals, and computer and video playback capabilities.
- Instructors initially apprehensive about teaching distance learning classes without on-site technical support have embraced the new technology.
- Instructors who had used little technology in the classroom and seemed unable to give up the chalkboard are now experimenting in their classes and developing clearer, livelier presentations.
- Costs of the automated equipment will be recouped in one year from savings in personnel costs.

External Recognition, Articles, and Presentations

- MCC's instructional design services staff have presented the design of operatorless automated TV classrooms at several local, state, and national conferences.
- Respiratory Therapy faculty demonstrated the effectiveness of this TV-based teaching model at a national conference.

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Computer-Based Physics Laboratory

Gainesville College (Georgia) recently acquired a state-of-the-art computer-based instructional laboratory for the physics/pre-engineering curriculum. The new lab—the first of its kind in the state—has significantly increased the capacity of the physics program without consuming additional resources, and has enhanced the quality of the students' educational experience.

The computer laboratory has twelve stations equipped with the hardware and sensors students need to explore physical laws in real time. Students conduct investigations in mechanics, electricity, magnetics, optics, sound, and radioactivity. The technology allows students to investigate mechanics in the context of their bodily movements—they can look into the physics of the human heart by looking at a facsimile of their EKG on a computer monitor or they can explore the physics of music by seeing overtones on the computer as they play a musical instrument or sing. The power of this approach is to put physical laws into a tangible context which students can immediately relate to their own experiences.

Over the past four years, physics enrollments have increased. The department was able to do "more with less" by having a large lecture section, multiple laboratory sections and out-of-class help sessions with just one professor and a laboratory instructor. Students set up and take down their own experiments, leaving the instructor more time for out-of-class assistance.

Benefits to the College

- The computer lab has allowed the college to increase capacity without additional resources.
- Students use the computer for measurement, analysis, simulation, and technical writing, none of which were part of the learning experience in the traditional lab.
- The self-contained nature of the stations reduces the need for timely set-up in advance.

External Recognition, Articles, and Presentations

- North Georgia College has established a similar facility and has adopted the Gainesville College laboratory curriculum; Bainbridge College and Atlanta Metro College are setting up similar laboratories.

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Course Outlines on CD-ROM

In 1995, the Confederation College of Applied Arts and Technology (Ontario, Canada) began distributing nearly 1,200 course outlines on CD-ROM. The CD-ROM can be searched by course number, course name, semester, or any key word. The college owns its own CD-ROM recorder which allows CDs to be recorded on site. The project streamlined the development of course curricula, made course outlines easily accessible, and proved efficient for use by faculty, support staff, and students.

A positive by-product of the CD-ROM project is the creation of an integrated database that includes the curriculum master file; an inventory of courses that meet General Education requirements; an inventory of courses available for Prior Learning Assessment challenge; and the complete outlines of 1200 credit courses—the beginning of a history file of course outlines that is easily archived and accessed. This database allows for varied access points that accommodate easy transfer from software packages and eventual network-ready configuration.

Benefits to the College

- Direct access to the curricula, unlike the past procedure of contacting individual departments for information and having them forward a print copy of each separate course outline, saves support-staff time.
- Department administrators, faculty, and support personnel can make changes from primary files, saving considerable time.
- For the first time, the college has one source for all college curricula.
- The issue of "quality assurance" in how the college documents and delivers learning to clients can be assessed at the senior administrative level.
- Making course information available in CD-ROM format resulted in significant cuts to departmental printing budgets.

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Developmental Education via Computer-Assisted Instruction

Through the Invest Learning Lab, Santa Fe Community College (New Mexico) offers self-paced, computer-assisted instruction for developmental mathematics courses, and supplemental custom curricula for English and reading classes. The lab has also proven to be indispensable in Adult Basic Education, GED, English as a Second Language classes, and literacy programs.

Similarly, the Flex Lab, which offers thirty computer-based courses in various disciplines, has become a center for the development of self-paced computer-assisted instruction for selected college-credit courses. Though focusing primarily on computer applications, the Flex Lab also offers computer-based instruction in areas such as medical terminology, accounting, Spanish language skills, algebra, and environmental science. Students can enroll in these courses any time, work at their own pace, and come to the lab at their convenience. The lab is staffed with a faculty member and learning technicians who assist students with their work as necessary. Students can study at home, at work, in a computer lab, or in the Flex Lab.

Both the Invest Learning Lab and the Flex Lab enable students to learn from computers, with minimal assistance from faculty members.

Benefits to the College

- Four courses (totaling nine sections) formerly offered in a traditional format can now be taken via the Invest Learning Lab and Flex Lab. These and approximately ten other courses, with higher enrollment limits, are now offered in the Flex Lab by a full-time instructor supported by part-time instructor assistants at a savings of approximately $10,000 per year.
- The Invest Learning Lab allows the college to help a higher volume of students without hiring additional tutors. The lab accommodates over 200 hours of student use per week that formerly cost $6 per hour, or $1,200 per week.

External Recognition, Articles, and Presentations

- The Invest Learning Lab at the college is a demonstration site for Invest Learning Corporation and a model for the development of innovative instructional programs.

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Enhancing Information Literacy

In an effort to extend information literacy throughout the campus community, the library staff at Ulster County Community College (New York) conducts training sessions for faculty and other professional staff to prepare them to teach a one-credit course on information resources. Most who participated in the eight-hour program have done so for their own development, but several have since committed to teach sections of the course. By fall 1997, the college anticipates expanding information literacy offerings to include discipline-specific sections across the curriculum. Additionally, the college is exploring how information literacy might be delivered over the Internet.

Benefits to the College

- The college saves on instructional costs.
- The training helps faculty to become "information literate."
- Faculty can bring their strength as teachers to the course to develop it into an integral part of the curriculum.
- Faculty can transform their own courses to include more sophisticated resource-based learning.

External Recognition, Articles, and Presentations

- The college was invited to make a presentation at the Association of College and Research Libraries.

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Faculty Development Initiative

The Center for Effective Learning and Teaching, created at the Houston Community College System—Southeast College (Texas), provides faculty and staff with training directly related to their specific teaching needs and concerns, and helps both full- and part-time faculty make continuous improvements in their teaching and learning efforts.

Seminars, in-service activities, workshops such as "Freelance Graphics for Windows," and demonstrations of an automated testing program have been offered. Faculty have gained from workshops on using computerized gradebooks; automated syllabus updating; improving grading techniques; and effectively utilizing the college's faculty evaluation instrument. Participants have attended free computer-oriented development sessions, and benefited from keynote speakers on topics such as "Leadership Excellence," "Bringing Multiculture into the Classroom," "Incorporating SCANS and Workforce Competencies into Instruction," and "Nine Cardinal Rules for Winning and Influencing People."

Nearly 110 full-time faculty and 400 part-time faculty have participated in activities sponsored by the Center for Effective Learning and Teaching.

Benefits to the College

- Faculty members acquired enhanced teaching skills and more efficient ways to deliver instruction. They also established positive relationships with their peers, as well as with administrators and support staff.
- Faculty develop seminars and workshop materials at no cost to the college.
- The faculty development center is readily accessible to faculty and students on the campus.
- Books and magazines are recycled at a center table at no cost to the college.
- The center director works on a volunteer basis and faculty and computer lab coordinators donate their time to teach faculty and students to integrate computer-assisted learning and traditional instruction.
- A test analysis system was developed and implemented to assist nursing and allied-health program students to improve test scores and enhance study competencies.
- The center provided several updated computers to the computer learning center paid for by revenues generated by offering biology software training workshops to area educators for a fee.
- The center was instrumental in developing new virus protection programs.

External Recognition Articles, and Presentations

- The center director and an instructor presented a multimedia presentation at the League for Innovation's Conference on Information Technology in 1994.
- The director presented a multimedia program for citizenship training to several hundred people at the same conference.
- The test analysis system developed at the college was recognized as a significant program enhancement by the Texas Board of Nurse Examiners in a recent reaccreditation process.

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Fire Technology Program

Four years ago, the Fire Technology program at the College of the Siskiyous (California) had a full-time coordinator/instructor position supported by a half-time clerical position. The program consisted of a core curriculum—which had not been approved by the state—and noncertified short-term courses offered to volunteer fire fighters. When the coordinator retired, only 40 percent of the program was continued, and the half-time clerical position was eliminated.

The college formed a fire technology task force to identify needs, provide program direction, and coordinate course offerings. The Siskiyou County fire warden, the president of the Fire Chiefs Association, chiefs of volunteer fire departments, college instructors, the director of adjunct instruction, the director for the business and technical area, and California Department of Forestry and Fire Protection personnel were members.

The task force concluded that while resources were being reduced at every level to fire service agencies, great advances were taking place in fire technology, and the demand was increasing for services provided by fire agencies such as emergency medical response, rescue, and hazardous materials first response. The need for standardized, comprehensive training and sharing of resources was paramount.

In order to meet this need, the college contracted with the Siskiyou County fire warden and several city fire departments to use their specialized training rooms, equipment, and fire apparatus. The college hired two coordinators on an hourly basis, formed a cadre of approximately 35 highly qualified adjunct instructors, and appointed a fire advisory board. Clerical support was provided by the adjunct instruction office. The college then applied for and received approval as a regional accredited academy with the state fire marshal's office.

The college now has a comprehensive fire program consisting of the state-approved core curriculum for the associate in science degree program; a variety of certificate courses; volunteer officer training; and specialized training in areas such as hazardous materials, incident command, and wildland fire fighting. The college has a complete library of training videos, reference books, instructor guides, and student manuals. Much of the success of the program can be attributed to a cooperative relationship with the California Department of Forestry and Fire Protection, and a "live-in" work-experience program where students are placed at fire stations throughout the county, giving them the experience they need to compete for career fire fighter positions.

Benefits to the College

- Program enrollments have increased by 303 percent.
- Costs are quite low since salaries are at an hourly rate and clerical support is provided by existing staff.
- The college has established a credible associate's degree program accepted for transfer at most four-year schools.
- Eighty students have graduated from the Fire Fighter I Recruit Academy with a 60 percent placement rate.
- Seven county volunteer fire departments have completed the requirements for Fire Fighter I certification.
- Over 300 students have attended certified training in auto extrication, hazardous materials first response, emergency medical, arson investigation, confined space rescue, and various fire officer training courses.
- The training has contributed significantly to raising the standard of performance of volunteer fire officers.
- Career fire officers from all over the state are coming to train at the college as the program gains recognition and credibility.

External Recognition, Articles, and Presentations

- The California State Board of Fire Services approved the college as a Regional Accredited Academy.
- The state Fire Marshal recognized the college for doing "more with less" by pooling resources, offering current and standardized training, increasing cooperation between agencies, ensuring that students are competitive in the job market, and raising the standard of performance of fire fighters in general.

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Integration of Multimedia into Instruction

During the 1994-95 academic year, Camden County College (New Jersey) designed and developed a multimedia teaching aid for the study of laser electro-optics technology. Laboratory instruction in laser electro-optics has proven to be complicated and costly. As some laser parts are very small, it is difficult for the 15 to 25 students in each lab to view each part and understand its function. Additionally, inexperienced students might damage delicate and expensive laser equipment.

The multimedia program provides instructors with a tool to teach the intricacies of the laser to each student. The multimedia presentation integrates schematic diagrams, working principles, model simulations, and video pictures of individual components and their function in the system.

Learning through the multimedia program has several advantages. First, the program can be run on many different computers and, therefore, provides instruction to large numbers of students. Second, use of the program reduces wear and potential harm to expensive laser equipment. Third, using the program is safer for students who may not yet be skilled enough to operate the laser. Finally, the presentation can be used for distance instruction in situations when financial resources are not available to purchase lasers or when it is not feasible to transport the lasers to the students' location.

Benefits to the College

- Student access to laser electro-optics technology is increased via the use of computer-delivered instruction.
- Expensive laser equipment is preserved.
- Safety is enhanced by decreasing exposure to lasers.
- Students gain access to training via distance learning.

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Large-Lecture Load Program

Since fall 1991, Santa Rosa Junior College (California) has had a large-lecture load program featuring classes taught in a 204-seat, media-equipped auditorium. These classes are "double-loaded" for the instructors and offer students greater scheduling flexibility by opening more seats in general education classes.

The college works to maintain instructional quality in these large classes. Instructors wishing to participate must have succeeded previously in large-lecture settings, must acquire department approval, and must demonstrate that both the content of the course and their instructional style are appropriate for a large classroom format. The facility is equipped to handle a wide variety of media and use of multimedia is encouraged. Instructors are given 40 percent load credit for each three-unit, large-lecture class taught, allowing them adequate time to prepare effective presentations, respond to the added volume of student paperwork, and hold additional office hours for students. Large-lecture instructors are also provided with substantial reader support to handle the paper load effectively and to ensure additional one-on-one contact with students.

Santa Rosa Junior College currently offers nine classes in the large-lecture format and expects to offer more in coming semesters. Disciplines covered have included anthropology, astronomy, art history, communications, psychology, sociology, and Native American art.

Benefits to the College

- Students have been pleased with the scheduling opportunities the classes have afforded.
- Students express satisfaction with the quality of instruction.
- While per-student support costs such as reader time and supplies tend to be minimally higher than for other classes, the salary and benefits savings are substantial: large-lecture load salary and benefits costs averaged $478 per full-time student during spring 1995, compared to $1,621 for the average class.

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Learning Construction Skills by Building Homes for Needy Families

The Albuquerque Technical Vocational Institute (New Mexico), through its trades and service occupations department, has incorporated carpentry, electrical, and plumbing program students in a project to construct houses for the Greater Albuquerque Habitat for Humanity. The project, begun about six years ago, allows students to obtain valuable hands-on training at real construction sites building homes for needy families. Previously, these students developed their skills building small houses on the college campus.

Benefits to the College

- Building materials for the houses constructed at the college had cost approximately $11,000 each term. Now, Habitat for Humanity provides the building sites and building materials, resulting in a savings to the college of $33,000 per year.
- Students get real application skills on a construction site.
- Needy families receive homes.

External Recognition, Articles, and Presentations

- The Habitat for Humanity project has been featured in the *Albuquerque Journal*.
- The project has been featured in the *Habitat for Humanity* newsletter at local, state, and national levels.

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Multimedia Across the Curriculum

The integration of multimedia computing into the curriculum requires training for faculty in software such as Novell, Windows, word processing, authoring systems, and presentation systems. At Montgomery County Community College (Pennsylvania), classes and individual training in these areas are available to faculty on an as-needed basis. The in-house training has proved popular among faculty, meets their professional development requirements, and encourages the use of new technology in the classroom.

The college strives to provide computer access to each faculty member, but recognized that it is not cost-effective to place a high-end multimedia computer on every desktop. With the help of a Title III grant, the college equipped a room with a multimedia computer and peripheral equipment that captures sound, stills, and video, and incorporates them into presentations or computer-assisted instruction applications. The room is located in the information systems center where technicians are available to assist faculty with the use of equipment, designing programs, or reviewing applications. Creating a center where faculty can use state-of-the-art equipment and software with around-the-clock support reinforced the college's commitment to support faculty in their endeavors to explore new ways of integrating multimedia into the curriculum.

The need to display computer multimedia applications in a classroom has far outstripped the college's ability to support creating a fixed display station in every classroom. The institution has opted instead to equip two mobile carts with the necessary hardware and software for delivery on an as-needed basis to two of the college's main buildings.

Benefits to the College

- The use of multimedia applications in the classroom has increased.
- Increased numbers of faculty have become interested in working with multimedia as creators or reviewers.

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Occupational Therapy Assistant Program

During development of the Occupational Therapy Assistant (OTA) program at Parkland College (Illinois), the steering committee determined that kitchen facilities, a bathroom similar to that found in a house or apartment, splinting equipment, treatment tables, and arts and crafts supplies and equipment were the absolute minimum required to meet course and program objectives. Aware of these needs, two local hospitals volunteered the use of their rehabilitation facilities to the college at no charge.

Laboratory experiences were provided to students at the hospitals in the evenings when the OTA department was closed. The only cost to the college has been for supplies consumed at the two hospitals. The program operates on a total supplies budget of $1,500. The college provides a general multipurpose classroom for laboratory activities, but no specialized equipment is required on campus.

Benefits to the College

- Start-up costs for the Occupational Therapy Assistant program were minimal.
- The college saves the costs of maintaining and upgrading equipment.
- Students benefit by seeing actual equipment in a real therapeutic setting.

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Overcoming Math Anxiety

The Mathematics Empowerment workshop at Cossatot Technical College (Arkansas) is designed to help students overcome "math anxiety." By learning how they learn best, students can adjust their study habits and note-taking skills to accommodate their own learning styles. With this knowledge, students can take control of their mathematics education and learn how to rid themselves of bad study habits. Students become aware that there are only a few real rules in mathematics and that understanding these rules can open many doors previously closed to them as effective learners of mathematics.

Benefits to the College

- Thirty percent of program participants surveyed said they wanted to continue with their mathematics education and have chosen fields that require more mathematics than originally planned.
- A large proportion of the students who have taken the workshop appear on the President's List and the Dean's List.
- At present, 20 percent of students enrolled in a mathematics course attend the empowerment workshop.
- None of the students participating in the program has dropped out of school.
- Participants have enthusiastically adopted workshop techniques and have formed study groups with other students.
- The program is used as a recruiting tool when students voice a fear of mathematics.

External Recognition, Articles, and Presentations

- The college has been invited to present the workshop at a Red River Council of Mathematics workshop, and at conferences sponsored by the Southwest Arkansas Council of Mathematics and the Arkansas Council of Mathematics.

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Part-Time Practical Nursing Program

Flexible educational opportunities were needed at Ivy Tech State College (Indiana) to allow students with work and/or family responsibilities to participate in a practical nursing program. An established full-time practical nursing program taught by experienced faculty in facilities designed for nursing education provided the framework for a part-time nursing program.

The part-time program uses existing full-time faculty by incorporating students into the same theory classes held for full-time students. Administrative and clerical services are already in place for the full-time program.

The part-time program is scheduled Thursday through Saturday. Students are able to complete the program in six semesters and can transfer into the full-time program if they wish.

Benefits to the College

- The anticipated cost of the initial two years of the program is $30,000 to $36,000. Cost for subsequent years is expected to be $20,000. The most significant expense will

result from hiring additional part-time adjunct faculty members to provide clinical instruction.
- Tuition collected during the first two years is expected to be $43,000. Income from tuition in subsequent years is estimated to be $29,000.
- By offering some clinical instruction in the evening, instructional facilities are being used more efficiently.

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Pharmacy Technician Program

The Pharmacy Technician program at Lakeshore Technical College (Wisconsin) provides learning opportunities through a partnership design particularly appropriate for community colleges located in rural areas with small populations.

Instruction is provided by the college to community hospital pharmacy sites via telephone and television, and students get hands-on experience in hospital pharmacies. Lakeshore Technical College (LTC) is responsible for the program's content and coordinates the instruction so that learning outcomes are consistent at each site. Nontechnical general education courses are provided by the community college closest to students' homes or workplaces. This program model has also been used for other programs at LTC.

Benefits to the College

- The college provides realistic program experiences for students without paying for upkeep of a simulation lab.
- Employers gain consistent access to highly trained individuals and provide continual input to the college regarding learning outcomes required by employers.
- Students are able to remain in their home communities and work in a pharmacy environment as they learn.

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Professional Upgrading Plan for Faculty

The Business Occupations department's professional upgrading plan at Albuquerque Technical Vocational Institute (New Mexico) creates business/educational partnerships that allow faculty and business employers to work as a team. The plan encourages faculty to acquire knowledge of current business practices through direct work experience, offering an alternative to costly and often less effective professional development such as conference attendance.

The duration of professional upgrading opportunities varies from one or two weeks to a half-term or a full year. Albuquerque Technical pays the faculty member's full salary for one- and two-week work assignments; for longer periods, the college and the business each pay half of the salary. Faculty members remain employees of the college and continue to receive full compensation and benefits.

Benefits to the College

- Faculty obtain knowledge of current business practices without incurring conference or travel costs.
- Faculty confidence that they can perform well outside of academia is reinforced.
- Faculty gain insight into the entry-level jobs students will be performing in the work force.
- Students gain potential employment opportunities.
- Students enter the work force better prepared due to their expanded knowledge of current business practices learned from faculty.
- Useful examples of business practices are readily available for classroom illustration.
- Businesses gain professional temporary employees who have skills and initiative to take on projects. Several business leaders have asked, "When can we have another faculty member work with us?"
- Possibilities for further partnership development between the business and the educational institution are increased.
- Faculty members continue to assist businesses on a volunteer basis because of the enriching experience.

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Program Validation Process

At least every three years, Columbus State Community College (Ohio) analyzes each of its technical programs as a means of determining that the programs provide graduates with the competencies needed to be successful in the workplace. The analysis process, or program validation, determines the essential eight to 12 competencies or outcomes for each program based on industry surveys, focus group discussions, formal advisory committee reviews, and national accreditation standards.

The extent to which individual competencies are addressed in individual technology courses is then assessed. Faculty complete curriculum matrices to determine which outcomes are addressed in which courses and which general education courses support technical content. Where "gaps" or duplications exist, the curriculum is revised to be more efficient and effective. When revisions have been made, students are assessed to determine the extent to which they have mastered required outcomes. Based on results, instructional changes may be made as necessary.

Through the process of program validation, the college ensures that its technical programs are current and its graduates are prepared for employment—according to standards established by area employers rather than the college. The curriculum is coherent and efficient, and assessment of student academic achievement is based on program outcomes valued by industry.

Benefits to the College

- Student performance has improved.
- Local employers have access to a pool of well-prepared graduates.

External Recognition, Articles, and Presentations

- The validation process was incorporated into the college's plan for the assessment of student academic achievement, and identified by the North Central Association as a model.
- College faculty have given presentations on the validation process at several conferences and have been asked to consult at other institutions.

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Teaching Computer Technology without Computers

When a three-semester-hour introduction to computers course was integrated into the core curriculum at Trident Technical College (South Carolina), the college sought a creative way to teach the course to an anticipated 1,700 students per semester. Realizing that the college did not have adequate facilities to offer the necessary 71 sections of the course per semester in a computer-equipped classroom, an alternative to teaching the course in computer classrooms was devised. A color projector was installed in a large classroom that accommodates 65 students, and a multimedia-configured computer was provided for the instructor. The college also created a networked computer lab capable of serving 45 students at a time, and managed by a faculty member and nine work-study student facilitators.

Course sections are now scheduled from early morning to late evening during the week, with two additional sections on weekends. All sections meet in the specially equipped classroom and are taught using a combination of lecture and demonstration. Students are assigned lab projects weekly and encouraged to complete them using the networked lab. Periodically during the course, students are required to report to the lab for supervised evaluation of lab-related objectives.

Benefits to the College

- The success rate for students taking the introductory computer course under this arrangement is consistent with the success rate of students who complete the course in a computer classroom.
- The college is able to meet the demand with only 26 sections, saving more than $70,000 in adjunct faculty costs alone. If the course were taught in a computer classroom with a computer available to each student, 71 sections would be required.
- The college spends $14,400 per semester for student-facilitators, most of whom are computer technology majors, saving nearly $45,000 per semester in faculty salaries.

External Recognition, Articles, and Presentations

- The computer information systems department head was invited to present the details of the program at the annual meeting of the Eastern Regional Consortium for Competency-Based Education.

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Tech-Prep Middle College for Technology Careers

Designed in partnership with the Houston Independent School District, the Houston Community College System (Texas) implemented a Tech-Prep Middle College for Technology Careers program. The four-year program, held at the community college's Technology Center campus, is open to students starting in ninth grade. High school students have access to college resources such as libraries and computer and science labs. Faculty and business and industry representatives act as mentors and provide role models for the students.

The first two years of the program feature an innovative, integrated curriculum. Boundaries between English, mathematics, social studies, and science are broken down and the disciplines examined as they interrelate in the real world. The integrated curriculum, based largely on the industrial technology curriculum, is project-oriented. For example, an industrial technology-based unit dealing with construction design and graphics would be analyzed to reveal its relationship to mathematics (measurements), physics (structural integrity), geography and history (the nature and role of shelter), fine arts (architectural styles), and English (through writing and the study of literary works that address humanity and shelter).

The final two years of the middle-college program allow students to specialize in engineering technology and to translate classroom learning to the real world of work through internship opportunities provided by community and business partners.

The postsecondary phase of the program continues the supportive atmosphere of the secondary program. Students engage in both technical and academic coursework, which allows them to graduate with an associate's degree. In addition, all credit courses are fully transferable to a four-year institution.

Benefits to the College

- Student performance on the Texas Assessment of Academic Skills Test and in the Texas Assessment Skills Program has improved.

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Writing Across the Curriculum Handbook

In collaboration with the English faculty, representatives from technical programs at Cossatot Technical College (Arkansas) researched and developed a handbook designed to expand writing in the technical classroom.

The Writing Across the Curriculum Handbook reviews rhetorical styles, grammatical rules, and documentation. The handbook lists specific examples from each instructional area represented. A section of the handbook is reserved for individual faculty members to insert writing examples from their particular fields.

Development of the handbook was founded through a Carl Perkins' grant for the purpose of integrating academic concepts into technical programs. The handbook has also served as a catalyst for increased student writing activities and promotes the outcomes and overall importance of writing courses as part of the technical curriculum.

The handbook resulted from combined efforts of academic and technical faculty; ownership by this broad group helps ensure review by the English faculty and continued use of the handbook in the technical classroom.

Benefits to the College

- Student writing activities have increased.
- The document has proven to be effective and simple to use and is produced at a low cost.

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Networks, Technology Training, and Distance Education

A.A. Degree through Electronic Delivery

The A+ Degree at Red Rocks Community College (Colorado) is a synergistic program designed to take advantage of multiple learning options—interactive video courses, self-paced courses, telecourses, and extended campus courses—which allow students to complete an associate of arts degree in two years or less without having to attend classes at the main campus. With the help of advisors, students plan a program that meets their individual needs through a combination of learning options. The A+ Degree program operates according to the Principles of Good Practice for Electronically Delivered Academic Degree and Certificate Programs of the Western Cooperative for Educational Telecommunications.

Benefits to the College

- The A+ Degree enables the college to meet the diverse educational needs of residents of Clear Creek, Gilpin, Jefferson, and Park counties, in an area of 3,694 square miles that would otherwise be difficult and expensive to service.
- Students are able to overcome geographic limitations of distance, poor roads, inclement weather, and sparse population to access the educational opportunities they need. The A+ Degree brings the college to them, offering a combination of interactive video courses, self-paced courses, telecourses, and extended campus courses in five otherwise isolated mountain locations.
- Students are able to complete self-paced courses and telecourses in less than the standard 15-week semester.
- Instructional costs per student are well below average costs for on-campus instructional delivery. For some courses the cost reduction is as much as 41 percent.
- Students have reduced time and travel costs.

External Recognition, Articles, and Presentations

- The program was nominated as an exemplary program for inclusion in *Putting Principles into Practice* published by the Western Interstate Cooperative for Higher Education.

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Computer Software and Training Support

In response to staff and faculty training needs relative to new computer technology and instructional delivery methods, Columbus State Community College (Ohio) created a computer software and training specialist position. Prior to the creation of the position, faculty and staff were expected to keep up with and learn new technology on their own, sometimes taking several months to become fully productive. Now, quarterly training workshops provide instruction in application software, e-mail usage, Internet access, and mainframe functions. Training materials are developed in-house and tailored specifically to the college's needs. In addition, the specialist helps faculty develop multimedia presentations, evaluates new technology and software, negotiates site licenses for software, and trains computer lab assistants.

Benefits to the College

- Training costs have been reduced due to use of in-house materials and need-focused training.
- Productivity of faculty, staff, and students has increased.
- Custom training has been provided.
- Questions regarding hardware, software, and instruction can be answered quickly through the college's help-desk phone.

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Dental Hygiene Program Uses Shared Resources and Interactive Television

During collegewide budget reductions in 1991, administrators and faculty at Northcentral Technical College (Wisconsin) were challenged to reduce the cost of the Dental Hygiene program and explored the possibility of sharing program resources with other state colleges. An incentive grant for new and emerging programs was funded by the state college system to assist with one year of development (1992-93) and two years of implementation (1993-95).

A multidistrict steering committee was formed with representatives from Northcentral Technical College (NTC), each of five cooperating districts, the Wisconsin Dental Association (WDA), the Wisconsin Dental Hygiene Association (WDHA), the Wisconsin Technical College System, and the Commission on Dental Accreditation. The steering committee and various subcommittees dealing with curriculum and library and audiovisual services facilitated access to a quality dental hygiene education using effective educational delivery to fulfill human resources needs.

The cooperating district campuses are located 120 miles and more from NTC. Lecture courses are taught by NTC dental hygiene faculty using an interactive television delivery system. Faculty hired by the cooperating districts and trained by NTC dental hygiene faculty teach labs and clinics held within each district. All districts use NTC's curriculum so course requirements, clinical records, and evaluation forms are consistent at each site.

NTC's dental hygiene program had been fully accredited as a traditional program. In July 1995, the Commission on Dental Accreditation granted "acceptable" status to the multidistrict dental hygiene program.

Benefits to the College

- The cost of delivering only the labs and clinics at NTC is considerably less than delivering the entire program on site.
- NTC increases cost-effective service to students by delivering lectures to all sites simultaneously.
- Although faculty costs were increased slightly, enrollments increased significantly.

External Recognition, Articles, and Presentations

- NTC program faculty received the Wisconsin Dental Association Presidents Award of Honor in 1994.

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Distance Education Collaborative

Lethbridge Community College (Alberta, Canada) and the Chinook Educational Consortium, a group of educational institutions, government, and community agencies cooperated to bring quality educational opportunities to adults in rural southwestern Alberta. The college had previously offered several noncredit courses in these communities, but was limited by high travel costs for instructors and low student enrollments. Using electronic distance-delivery, the college and the consortium were able to offer courses to several communities simultaneously while avoiding the costs and inconvenience of instructor travel.

Courses in academic studies, consumer education, family studies, and public legal education were selected for the pilot project and offered evenings when the demand for audioconference equipment and services would be lower. The electronically transmitted course content is supplemented by print materials and/or videos available in the various communities. Students register through a central computerized registration system at the college. Instructors are hired by the college. Audioconference equipment, facilities, and services are provided by both organizations.

Benefits to the College

- Electronic distance delivery eliminates travel time and costs for instructors which translates to lower registration fees for students.
- Students can remain in their own communities rather than travel to regional centers to take courses.
- Pooling other resources between the organizations makes it more viable to offer the courses in rural communities.
- Promotion is handled by the consortium through existing networks in each area and costs are shared by both organizations.

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Educational Consortium Provides Internet Access

Raritan Valley Community College (New Jersey) has made an institutional commitment to use technology in instruction to enrich the educational experience of students with a focus on using the Internet both as content and as a teaching tool for students and faculty. The college received a three-year National Science Foundation (NSF) grant for Internet access from 1992 to 1995. As Internet use permeated the curriculum—with over 3,000 active accounts and use migrating to graphics-intensive modes—educational planners determined that an expensive T-1 level service would be needed. With the NSF grant expiring and a no-growth budget, Raritan Valley Community College (RVCC) developed a plan to become an Internet provider for the region's schools and public libraries.

The college started the Raritan Valley Educational Consortium (RVEC) and attracted 31 institutions to join in order to receive Internet service for a fee. Fees support an infrastructure of technical and help-desk staff who service both college and consortium clients. Generated revenues cover the costs of the T-1 service. Collaboration with schools and public libraries has created a ready market for RVCC custom training programs for K-12 teachers and librarians through the college's Institute for Business and Professional Development. Associations with school districts have had the additional benefit of enhancing tech-prep programs and recruiting efforts.

Benefits to the College

- RVCC enjoys T-1 level Internet access.
- The college has been able to hire a technical staff member on a cost-recovery basis.
- Consortium members receive Internet access for approximately half the cost of commercial vendors.

External Recognition, Articles, and Presentations

- RVCC was recognized with an IBM/AACC Electronic Networking Award for the technological infrastructure that makes the college's Internet hub possible.
- The state of New Jersey formally recognized the excellence of the business plan which resulted in RVEC.
- The state library designed a grant program to encourage replication of RVCC's achievement statewide.
- RVCC was awarded a $50,000 grant from the state library.

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Establishing a Campus Network

When various departments at Luzerne County Community College (Pennsylvania) were restructured into a new division with activities and personnel located in three separate buildings, the dean determined an electronic network to maintain communications would be essential. Initial investigation revealed that network-suitable cable was already in place—though not in use—between two of the buildings. Existing cable would need to be linked to the other building to create the backbone of the proposed network.

Original estimates for the design and installation of a local area network (LAN)—which covered interbuilding connections, but did not include any software, network cards, or workstation cabling—far exceeded available funds. The college, therefore, used maintenance staff to install the networking cable and contracted with an outside company to connect more complex fiberoptic terminators. Consequently, installation costs were reduced by more than half.

A file server, cabling, network hardware, network cards, and software were also needed to complete the network. To keep costs down, the college purchased low-cost "off-brand" network cards. Ten reading lab workstations were created by reusing old computer systems salvaged from other parts of the campus. Fortunately, performance of the older systems was not an issue since the programs did not require a fast processor. To facilitate administration of the reading lab, the LAN manager's workstation was also linked to the network.

The new network supports 34 users, three print servers, and a gateway. An existing gateway on the prior network was upgraded, and an additional gateway card was installed. The college effectively saved $13,260 on the installation.

In addition, the college was able to negotiate the purchase of a 250-user network license at less than half price. This was installed on the network server which was configured to accommodate 34 users with access to e-mail, calendaring, and scheduling. Software licenses were also acquired for word processing, database, and spreadsheet software.

Benefits to the College

- The entire installation cost approximately $21,000.
- The cost per node was $618.
- The only new equipment required was a file server.

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International Interactive Learning and Team Teaching Experience

In a pilot class in Comparative Democracy at Metropolitan Community College (Nebraska), American and Swedish students compared contemporary social and political issues in government, education, healthcare systems, and diversity. The class was also an adventure in team teaching for two faculty members, one in the United States and the other in Sweden. It was the first Metropolitan Community College (MCC) interactive video class to link MCC students directly with students in another country.

Five of the ten class sessions were "live" interactions between the American and Swedish students. In other sessions, students and instructors prepared for the interactive sessions and researched chosen topics. The class also communicated via computer, fax, and the Internet. Videotapes and textbooks were exchanged to provide a common base of understanding. The video link was transmitted using Picturetel facilities and telephone lines in a compressed format. The college set up the teleconferencing arrangements, coordinated the materials distribution to and from Sweden, and provided an Internet e-mail connection, course syllabus, and speakers through an internal collaborative effort. Guest lecturers included a Native American tribal government attorney and the chairman of the Sweden Saami Federation.

Students in Sweden were pleased to be able to practice English and "see" real Americans. All 45 students participating in the course expressed their appreciation for the opportunity to learn about cultural differences and the variances between the democratic systems in the United States and Sweden.

Benefits to the College

- The Sweden Connection was a creation of many partners who voluntarily took on additional job duties and tasks as the project took shape.
- The costs of teleconferencing were underwritten by AT&T in 1994 and MCI in 1995. Contributions of long-distance telephone charges, Picturetel facilities, and technical support amounted to nearly $2,500 per class.
- Communicating with Sweden by e-mail, fax, and low-cost long-distance calls kept MCC's costs at a minimum. Swedish participants shared the costs of telephone charges.

External Recognition, Articles, and Presentations

- The project was cited as outstanding by AT&T, recognized by the Nebraska Governors Conference on Innovations in Telecommunications and Education, and acknowledged for its effectiveness by the Swedish consulate.
- The project was noted by the American Association of Community Colleges/Instructional Telecommunications Consort and featured in the *Folk Education of America* newsletter.

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Local Area Network and Internet Access

In 1992, Piedmont Virginia Community College (PVCC) had a single local area network (LAN) consisting of one classroom of personal computers and a plan for advancing the level of administrative and instructional computing services. There was little money. Telecomputing technology and specific expertise in LAN was minimal. Nonetheless, the fall 1995 semester opened at PVCC with a LAN connecting some 350 computers in seven academic labs, all college offices, the learning resources center, and several laboratories. The network supports e-mail, distributes applications from remote mainframe computers, and provides Internet access.

This transformation was possible due to several factors: college leaders enlisted the cooperation of the nearby University of Virginia (UVA) to obtain necessary expertise; a faculty member on released time leveraged connections with the College of Engineering at UVA to obtain surplus hardware; staff and students were eager to learn and collaborate; and all parties shared a vision of the goal. A National Science Foundation grant supported the purchase of some of the necessary hardware and a two-year membership in a university research Internet provider. Use of downloaded freeware for e-mail and Internet browsing complemented the college's acquisition of essential hardware, the LAN, and bridge software. Students strung cable, installed hardware, and assisted college computer technicians.

The application of technology "on a shoestring" has been enhanced by a student built and managed Web page on the Internet which provides general, class schedule, and financial-aid information to staff, students, and the public.

Benefits to the College

- The e-mail system at PVCC is powerful and convenient.
- E-mail has become the communication method of choice for the college's faculty and staff and, increasingly, for students (for whom it provides improved access to faculty and other students).
- Faculty have begun to include e-mail-facilitated collaborative learning into instructional practice.

- Information needed to support faculty-based student advising is easily accessible by electronic means in each faculty office.
- There is ample evidence that PVCC's Web page is reaching a wide audience. In the first month of the fall 1995 semester, the page registered 3,000 "hits" or visits.

External Recognition, Articles, and Presentations

- The college has been asked to provide demonstrations of the system for numerous other colleges.
- The Web page continues to receive praise from both users and professionals in the field, as well as requests to share how it was created and maintained.

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Multipurpose Interactive Distance Learning

Two years ago, Lake City Community College (Florida) identified a need to deliver interactive education to the disadvantaged, rural areas served by the college. However, cutting-edge technology is expensive, and little money was available for any such endeavor. Rather than give up on the project, college technical specialists set out to convert an existing one-way Instructional Television Fixed Service (ITFS) delivery system into a two-way interactive system. To fund the $397,000 project, Lake City Community College (LCCC) garnered cooperation and commitment for matching grant dollars from two school districts in Gilchrist and Dixie counties that would serve as electronic distance learning sites. The college then competed for and won a Distance Learning/Medical-Links grant in the amount of $220,000 from the Rural Electrification Administration.

Still short by more than half the needed funds, the college negotiated the lease of unused air time on its 10 ITFS broadcast channels with private-sector companies engaged in providing wireless communication. As part of the contract, LCCC received three studio-to-transmitter links (STLs), $158,000 in cash commitments for equipment, and virtually unlimited and free access to the company's engineers and legal staff. The contract also gives the college per-home lease fees from the wireless company, amounting to $17,000 per year. This income has been designated to cover operational and maintenance costs of the system.

Construction costs were picked up by the REA grant and private-sector agreements while operations and maintenance costs are covered by the channel-lease fees. The system is inexpensive to operate, easy for nontechnical personnel to use, and expandable to include other electronic classrooms. It will provide ITFS telecourse programming, as well as a wide range of other educational instructional programs. When completed the college will be able to provide three-frame, real-time, two-way interactive distance education to several rural classrooms at virtually no cost to the college or the school districts.

Benefits to the College

- The college will be able to provide a wide range of educational programs including General Education, Adult Basic Education, Health Care and Prevention, Vocational Education, and degree courses.
- The college and school districts will save on operating costs because of private-sector partnerships.

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Reservation System for Equipment and Software

The Buchanan Library at the Lethbridge Community College (Alberta, Canada) has purchased software compatible with the library's automation package to allow college staff an opportunity to book hardware and/or software for instructional purposes. As well as being more convenient and efficient for the faculty the system is expected to free up delivery time and give the library a chance to make sure all requested equipment is really needed. At present, approximately 30 percent of the equipment reserved by faculty is not used. If software is booked for use at the same time as the equipment is reserved, library staff will be able to better accommodate faculty needs. Eventually, faculty will be able to check equipment and/or software availability from their home or office.

Benefits to the College

- Measurable time savings are anticipated in the booking and delivery of equipment/software.
- The college is expected to experience efficiencies in ensuring software is properly matched with equipment, achieving a check on unnecessary bookings.
- Faculty will be able to access the system from anywhere at any time.

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Shareware and a Campuswide Network

Reconfiguring the network to allow for "anywhere-to-anywhere" computing in the most cost-effective and low-maintenance manner has been a high priority at Montgomery County Community College (Pennsylvania). Exploring the use of shareware for the network rather than purchasing high-end software has also proven effective. In the past, Montgomery County Community College (MCCC) supported each computer lab with its own file server to store student applications and files, and labs were usually associated with a single curriculum. These labs were reconfigured to consolidate the academic servers to a centrally accessible file server.

Currently 5,500 student IDs are stored on the central server; the goal is to create and store IDs for every student on campus by 1997.

Software metering is also available as a result of the consolidation. The "super server" contains applications from every curriculum, and MCCC has been able to share licenses of applications across curricula and computer labs.

Benefits to the College

- Lab use is no longer "curriculum specific," allowing more efficient use of lab equipment.
- Students and faculty are provided with better service and software availability.
- The cost difference in shareware and commercially available software provides significant savings. The college has used several shareware applications for e-mail, user account management, and file management to do the jobs of similar yet more costly commercial applications.
- Through software metering and license sharing, the college is able to serve over 170 workstations with just eight copies of office software.
- The number of software licenses required on campus has been substantially reduced.

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Technology Cross-Training

In 1994, Mountain Empire Community College (Virginia) made significant progress in incorporating new technology: most college personnel had personal computers; a local area network (LAN) was in place; the library was automated; and a fiberoptic-based interactive television (ITV) classroom had been set up. Funds for professional development, however, were limited. Determined to provide high-quality technology training to faculty, classified staff, and administrators, the college sought help from the institution's richest resource: its people. The human resources committee devised a simple, cost-effective plan to provide needed training. Using college personnel with expertise in specific areas, a training schedule was developed to provide mini-workshops on the use of various software packages and operating systems; accessing information via the Internet; online libraries; and student databases. Staff members who taught the workshops were paid for their services, but administrators and classified staff took the workshops as part of their work load.

To keep abreast of the latest advances in technology, college representatives were sent off-campus for training with the expectation that they would share their new-found expertise

with other faculty and staff. In this manner, the college stayed up-to-date while expanding the knowledge and skills of its entire work force. Using the college's own experts and providing the training on campus at convenient times resulted in a large number of employees being trained in critical areas of technology.

The effectiveness of the approach is remarkable when measured against the cost of sending staff members to off-site classes or conferences. For the latest advances in technology, each person sent off-campus for training becomes a trainer for other faculty and staff members.

Benefits to the College

- The college provided 639 hours of professional development to 71 college employees at a total cost of $1,047 or $1.64 per hour of instruction.
- The college stays up-to-date while expanding the knowledge and skills of its entire work force.

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Tutors in Cyberspace

The Writing Center Consultation Project is a collaboration between the University of Arkansas at Little Rock (UALR) and Roane State Community College—Oak Ridge Campus (Tennessee). Roane State Community College (RSCC) students e-mail drafts of their essays to graduate students at UALR who then return the drafts through e-mail along with comments. The RSCC and UALR students then meet for a synchronous writing conference at a cyberspace writing center. The project is supported by existing e-mail capabilities and Internet access.

Faculty at the two institutions have studied the impact this pilot project has had on the students, and both groups of students noted that the experience was helpful. The community college students responded by engaging in more revision of their writing. The university students focused on the pedagogical potential and the contrast between traditional writing centers and cyberspace writing center conferencing. Clearly, all students involved became more adept with the kind of technology they will be using in their careers. Meeting in cyberspace, students learn not only how to write well but how to work successfully with others toward a common goal.

Collaboration between different kinds of institutions means more educational opportunities for all students. One graduate student has completed his master's thesis on the project and entered a doctoral program at Ball State University. Another graduate student is currently writing her thesis on the project.

Benefits to the College

- The college avoids the expense of staffing a writing center with tutors.
- Graduate students gain experience as writing tutors.
- Community college students receive tutoring and feedback about their writing quickly and at no cost to themselves.

External Recognition, Articles, and Presentations

- "Tutoring in Cyberspace: Student Impact and College/University Collaboration," *Computers and Composition*, 12(2), August 1995.
- "A Description of the Writing Center Consultation Project" *ACW Connections*, February 1995. Online journal available from: http://prairie_island.ttu.edu/acw/acw.html/.
- "Using the Internet for Writing Consultations: A Start-Up Guide with Hands-On Training." Workshop presented at the National Writing Center Association Conference, St. Louis, Missouri, September 30, 1995.
- "Topics in Technical Writing & Rhetoric: Instructor Training in Writing/Critical Thinking Skills Using the Internet." Faculty workshop at the University of Little Rock, Arkansas, July 31 to August 2, 1995.
- "Tutoring in Cyberspace." A lecture presented at the Computers and Writing Conference, El Paso, Texas, May 1995.
- "Tutoring Writing Students On-Line." Netoric Project: Professional and Educational MUDing: A Virtual Open House. Tuesday, September 27, 1994.
- The project has also spawned its own Web page at: http://fur.rscc.cc.tn.us.cypberproject.html/ and a related page at http://fur.rscc.cc.tn.us.owl/owl/html/.

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Voicemail Communications in Language Telecourses

Unaware of potential benefits to its instructional program, Catonsville Community College (Maryland) installed a new voice-messaging telephone system in 1992. The foreign languages coordinator recognized that many functions and features could be applied to language telecourses and distance learning. Advantages are many: recordings are sharp and clear with none of the hum or static common to the audiotapes previously used; recordings of messages from students and instructors can be made much longer than on the old phone recorders; exercises can be recorded, as well as series of questions or a poetry reading after an instructor's greeting; and students are able to call in at any time and as many times as they wish to hear language recordings before responding. Further, faculty are able to grade responses at their convenience, and students and instructors can communicate from any location, as long as they have access to a touch-tone phone.

The new telephone system has provided a simple way to increase vital oral communication between students and teachers at distant locations. Faculty have developed communicative learning activities such as questions on videotaped soap operas and short literary readings for several language telecourses. An exclusive line for telecourse students enables students to call in for updated messages and activities without tying up regular office lines.

Benefits to the College

- Oral communication between telecourse students and instructors has increased. Students receive feedback more quickly.
- Faculty do not have to invest in and maintain audiotape equipment nor devote hours per assignment to winding tapes, finding responses, and recording corrections.
- Faculty and students no longer have to drive to different locations to pick up, deliver, listen to, or record tapes.
- Recordings are of such quality that students and instructors can hear each syllable and variations in intonation or volume. They can personalize messages using their voices to be more expressive with a distinction in syllables and soft tones often not clear on audiotapes.
- Students no longer have the inconvenience and cost of borrowing or purchasing audiotape equipment.
- Student performance has increased: those who use voicemail regularly receive higher scores on exams and speak more in class.

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World Community College: Interactive, Comprehensive Learning

Brevard Community College (Florida) is a pioneer in providing courses for the World Community College (WCC) through America Online. In collaboration with the Electronic University Network (EUN), Brevard Community College (BCC) went online in 1995 to provide students worldwide the opportunity to complete college degree and certificate programs, as well as noncredit seminars and workshops.

WCC is a consortium of colleges that offers distance learning to students. Courses are available to students who have access to a computer, modem, and telephone line. Computerized instruction is supplemented with extensive videotape support.

Computerized communication is the chief means of contact among students and between students, faculty, and support personnel. Students in small schools with only one computer are able to join nationwide classes and access subjects unavailable to them locally.

Benefits to the College

- Linking people through online education extends the ability to share information and gain knowledge and capabilities.
- Increased options include customized workforce training accessible via individual employee workstations.
- Instructors keep regular contact with students using the computer for debate and discussion, for group problem-solving exercises, and to monitor assignments.
- Through this project, education becomes a truly lifelong learning process.
- The college adds to student enrollments without having to build additional facilities, saving construction, operating, and maintenance costs.
- Students have access to education from remote locations, saving time as well as travel expenses.

External Recognition, Articles, and Presentations

- "Students Can Turn On Computer, Click on Degree." *The Orlando Sentinel*, September 27, 1995: C3.
- "BCC Set to Pioneer Online Education Program." *Florida Today*, September 26, 1995: 1B.

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Planning and Budgeting

Communitywide Collaboration to Pool Resources and Reduce Duplication

The Houston Community College System–Northwest College (Texas) has a major campus in each school district that the Katy Freeway serves. Using the concept of the freeway as a connecting "river" that defines a district community, the college built an outreach program with business and industry and educational institutions. The Task Force for Career, Instructional, and Economic Development on the Katy Freeway Corridor is intended to serve students and the community by pooling resources, reducing duplication, and increasing productivity through cooperation and collaboration. Implementation of the program will include such measures as building workplace skills and competencies; enhancing career development and exploration for all students; articulating programs between secondary and postsecondary schools through tech-prep, dual credit, and proper sequencing of courses; expanding off-campus learning opportunities for students; pooling resources to provide staff development opportunities; increasing community awareness and support of career development activities; implementing a common computer system for learning resources and tracking students; and providing one placement service for all students in the corridor.

Benefits to the College

- Enrolling more than 500 area high school students in dual-credit classes has reduced duplication.
- Sharing resources for career development and career information has reduced costs and duplication of effort.
- Articulation of programs with tech-prep and articulation agreements reduces duplication of effort and costs.
- Expansion of off-campus learning sites and redefinition of the "classroom" is saving money in capital expenditures for equipment and buildings for districts.
- Shared staff development has promoted collaboration.
- Shared job placement saves money and duplication.
- Education at all levels is enhanced by collaboration.

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Decentralizing Resources and Responsibilities

In 1990, Pima County Community College District (Arizona), with a stable enrollment and decreasing state support, wanted to revitalize the campuses, empower faculty, and modernize. At the time, the multicampus college was centralized, but campus leaders had limited decision-making power in the educational enterprise. Morale on the campuses was low, and the central district office was perceived as threatening college effectiveness. Finances were tight, and no new funding was expected.

Many resources and responsibilities that had been the jurisdiction of the district office were decentralized. Responsibility for human resources, financial resources, and other areas along with decision-making responsibility, authority to respond, and accountability were shifted to the campuses. While the process of making this fundamental change took five years, its impact is expected to last much longer.

Several strategies were involved in making the transition: key personnel were involved in activities that encouraged growth; all changes were made with careful regard for timing; and many small, but highly visible improvements were made to help establish a new climate. Trust increased among employees and between employee groups. Individual faculty and staff began to make a greater personal investment in doing a good job.

Several formal steps were taken. First, the campus chief executive officers were formally designated as the educational and instructional leaders and given broad discretion to make decisions on campus issues. Second, formal and informal leaders completed PCCCD's Leadership Seminar Series. The college acknowledged the leadership role of seminar graduates by seeking them out and acting on their advice. Third, since the need to adapt and respond quickly to student needs was emphasized as an institutional imperative, addressing student needs became the criterion for reassigning responsibilities.

The now separate district and campus functions were based on common values with college leadership monitoring compliance with institutional policies and supporting the central office. Direct academic and student service was now solely the responsibility of the campuses and campus self-determination was greatly strengthened as a result. Finally, all college publications were revised to reflect and clarify the redefined allocation of responsibilities.

Positive results were demonstrated throughout the institution with attitudes improving appreciably as the campuses

were strengthened. The guiding thought behind all the changes—that campus rather than district personnel were now expected to respond quickly and decisively to students—was reinforced by increases in campus budgets made possible by transferring funds previously controlled by the central district office. Faculty and staff became active in decision sharing, were rewarded, felt valued, understood their roles better than before, accepted increased responsibilities, and applied their newly learned interpersonal and professional skills.

Benefits to the College

- Resources were transferred from the district central office to campuses, accompanied by the necessary authority and responsibility.
- More students were served directly and with fewer delays.
- By the third year, $2.5 million in operating funds and 38 positions were transferred from the district to the campuses.
- By the fifth year, 41 new faculty, and a further $1.1 million in salaries were added to campuses.
- PCCCD spends the smallest budget percent on administration and has the lowest cost per student of any community college or university in the state.
- Interpersonal and professional skills learned through leadership seminars are reinforced through the allocation of funds, personnel, and responsibility.
- The five-year district redesign was accomplished without any faculty or staff layoffs and no grievances were filed.

External Recognition, Articles, and Presentations

- The college received the American Association of University Administrators John L. Blackburn Award in 1995, in the category Restructuring Higher Education: The Economics of Scale. Pima is the first community college to receive this award.

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Expanding the Mission through Restructuring

In 1992, the Board of Trustees of Hudson County Community College (New Jersey) supported its newly appointed president in challenging the college to make a major transition from a limited-mission institution that emphasized career-oriented programs to a comprehensive urban community college. An additional aspect of this challenge was to revise the mission and accomplish necessary operational changes during a period when resources were becoming increasingly scarce.

The multidimensional process used by HCCC to tackle this mandate included a review of mission statements; a survey of over 1,100 representatives of internal and external constituencies; and a one-day forum involving approximately 100 members of internal and external constituencies. The revised mission statement was approved by the board in 1993.

Within two years of adopting the new mission and reorganizing to accomplish its new purposes, Hudson County Community College led the 19 community colleges in the state in enrollment increases; the liberal arts transfer program was the largest at the college; and a new science and technology center was opened. Additionally, the college received a $1.7 million U.S. Department of Education Title III, Strengthening Institutions grant to restructure its general education core curriculum and develop a computerized student information system. All these achievements reflect the expanded mission statement and the central role that the statement gives to general education and liberal arts and science.

Benefits to the College

- Student enrollment has grown by 29 percent.
- The liberal arts program has become the largest of the college's 29 degree and certificate programs
- Seven certificate and degree options were added in 1994.
- An in-house management information systems unit was established at an annual savings of $300,000.
- Campus security, cleaning, van, and maintenance services were privatized at a savings of $700,000 annually.
- Elimination of rented classroom facilities saved the college $100,000 annually.
- Reorganization of the controller's unit and reduction of 47 positions saved the college $200,000 per year in salaries.

External Recognition, Articles, and Presentations

- The mission renewal process and its impact on Hudson County Community College has been featured in an article, "National Council for Marketing and Public Relations," in *Counsel*.
- The process has been the basis of presentations at key national meetings of community college professionals.
- The college received an inaugural David Pierce Quality Organizational Leadership Award in 1995.

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Linking Strategic Goals to the Budget

Parkland College (Illinois) uses a four-part planning process to link strategic goals with the budgeting process: strategic planning; operational planning; budget planning; and environmental scanning and evaluation. The focus here is on the operational planning and budgeting processes.

The Parkland College (PC) operational plan is based on four strategic goals:

1. The college will foster a stronger and healthier learning community.
2. The college will foster greater commitment to higher standards of quality in both education and administration.
3. The college will so enhance its leadership role in postsecondary education and community service that it will become recognized increasingly as one of the premier community colleges in the nation.
4. The college will achieve and maintain financial vitality.

The operational plan developed as follows:

1. Each department determines its staffing, equipment, and action initiatives for the next one and three years by consensus, then forwards that information to the vice president for academic and student services who also chairs the college planning committee. Those items become that department's operational plan.
2. From those plans submitted, the vice president drafts a college operational plan, which is reviewed by the committee then sent collegewide for comment. This revised plan becomes the blueprint for preparation of the next budget and drives the action items of the departments and the college for the next year.
3. The top 15 to 20 new initiatives, key equipment purchases, and new positions selected by senior administration are reviewed and ranked by the planning committee and the results distributed collegewide. The process is bottom up and completely open, and a majority of committee members are nonadministrative faculty and staff.
4. Top-ranked items are included in the next budget.

Appropriate internal and external data are used extensively in the preparation and evaluation process. Parkland College has a comprehensive program-review process and automatically reviews all vacant positions in terms of possible reallocation to higher priority positions.

Benefits to the College

- Administrative positions have been decreased from 47 to 29 over the past five years.
- Full-time teaching faculty positions have increased from 131 to 154 over the past five years.
- Credit hours taught by full-time faculty have increased by 12 percent (from 44 to 56 percent).
- Numerous professional support and nonacademic positions have been reviewed and reassigned.
- Annual purchases of instructional equipment have increased from approximately $250,000 to $1,000,000.
- The campus and all faculty and administrative offices have been networked.
- Instructional technology, methods and delivery of instruction, classroom assessment, and institutional effectiveness have been made top priorities.
- The planning process has earned the enthusiastic endorsement and respect of faculty, administration, and staff.

External Recognition, Articles, and Presentations

- Parkland College was awarded Special Recognition for Excellence in Institutional Quality for its planning process and results by the Illinois Community College Board.

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Student and Community Charter

In 1993, the British Parliament passed laws that incorporated colleges of further education in the United Kingdom as independent institutions. Funding for the colleges from that point on was dependent upon successful student performance. This necessitated a reconsideration of long-standing educational traditions based on old customs and practices. As a response to the changes, South Devon College (United Kingdom) decided to revamp the entire learning process for students, as well as the services supporting students. After careful consideration, pedagogic styles were changed to increase the focus on student success; the amount of time spent on different learning activities was modified; every process of the college involving students was radically and permanently changed.

All of the changes and the new requirements for student performance were formulated into a "Student and Community Charter." The charter is a document that states precisely what the college expects from the student and what the student can expect from the college—it is an informal "contract." The goal is "no surprises" for either party during any program of study.

South Devon College is an "open door" institution, and all students are accepted regardless of their level of academic preparation. On admission, students are counseled on appropriate programs of study to meet their needs. They are further helped towards meeting their educational goals by a sophisticated support structure of welfare, counseling, and general care that has been put in place to support their educational efforts. A friendly tutorial system ensures individual monitoring and follow-up for students.

Benefits to the College

- Staffing costs for the college have been reduced from nearly 80 percent of the operating budget in 1993 to 67 percent in 1995.
- Student enrollments have increased substantially each year.
- Student performance in academic and vocational programs has consistently improved. Students have achieved an 83 percent successful completion rate in vocational programs in the same year that national data indicated that the average completion rate for the more than 600 comparable colleges in the United Kingdom was well below 50 percent. Academic results compare favorably with the selective special schools in the United Kingdom that demand high prerequisites for enrollment.
- According to national data, South Devon College is the third most cost-effective institution (of more than 600) in the United Kingdom.

External Recognition, Articles, and Presentations

- A CharterMark Award for Excellence was presented to the college's chief executive by the Prime Minister.
- The college's chief executive and the president of the Students' Association were awarded a Secretary of State for Education Charter Prize for innovation in developing the student performance-based strategies.
- South Devon College, in conjunction with its partner, the University of Plymouth, was awarded a Queen's Anniversary Award for innovative access to education for adults, presented in person by Queen Elizabeth II.

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Student Services

Automated Academic Advisement

Central Florida Community College uses a computerized advisement tool that gives counselors immediate access to the academic progress, degree requirements, and graduation eligibility for degree-seeking students. The automated academic status program developed at the college displays several categories of information on screen, and students are given a printed copy after each meeting with an academic advisor.

An academic advisement status option displays degree requirements as well as courses the student has attempted. A graduation status summary details hours required, hours earned, grade point average, and a synopsis of the student's eligibility to graduate. A progress record details course numbers, grades, and credit hours earned and lists—by discipline—courses that the student is currently enrolled in and has successfully completed.

A special feature of the system is the comments section which allows counselors to keep a computerized record of all previous advisement sessions. The summary of previous counseling sessions is a permanent record and cannot be changed. A "today's comments" section allows counselors to keep the student's record current.

Benefits to the College

- Since the automated advisement status program was implemented, there has been a significant increase in productivity as well as reduction in time, effort, repetition, and errors.
- The system has proven to be highly efficient for students and counselors in planning course schedules and graduation checks.
- The records department can verify graduating students in minimal time.
- The comments option has eliminated the advisement paper trail and saved security vault space.
- The ability to conduct a rapid review of a student's record enables counselors to make informed recommendations to students.

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Automated Telephone Notification and Call-Routing System

The office of admissions and records at the Community College of Rhode Island (CCRI), with limited financial and staff resources, has aggressively embraced the use of technology as a solution to serving large numbers of students. The first move in this direction was the purchase and installation of a telephone voice-response registration system and an automated degree audit/advisement system.

The most recent technology to be adopted by the CCRI office of admissions and records is an automated phone notification and call-routing system, a PC-based package composed of hardware that digitizes voice messages for storage and software that builds student database files and message files.

The system handles routine telephone calls, freeing personnel to concentrate on calls that require individualized attention. Once activated, the system places a call, delivers a specific message and, if requested, collects a response. Phone numbers which are not answered are placed in a queue for calling at a future time. The system may be used to call students who lose course registrations due to insufficient enrollments, have outstanding admissions or financial-aid application requirements, or may have courses dropped due to lack of payment.

Benefits to the College

- Of the over 15,000 students who enroll at CCRI each semester, as many as 500 may have a course canceled because of insufficient enrollment. Prior to the purchase of the system, ten people were hired to call and inform students of cancellations, then assist them in selecting alternative courses. This service cost more than $7,000 per year. The new system, purchased for $3,500, eliminates this annual expense.
- When using individual callers, calls converted to reregistrations ranged from 40 to 60 percent; the automated registration system produced 75 percent reregistrations.

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Early Academic Warning System

Student success, especially for "at-risk" students, depends on early intervention and help. The Early Academic Warning System (EAWS) at Coffeyville Community College (Kansas) is a simple, user-friendly computer program accessible through e-mail that promotes student success while storing all faculty reports on students. Faculty use the system to document student performance, track progress, note student absences and low test scores, and to intervene if necessary. In addition, the system is used to recognize good work and student progress.

The system is extremely efficient and eliminates a considerable amount of paperwork. Reports are generated during the night and sent via e-mail to student advisors, deans, and the directors of academic support and financial aid.

Benefits to the College

- The EAWS has saved many students from academic probation.
- Student retention rates have increased from 48 percent in 1989 to 74 percent in 1995. The fall 1994 to spring 1995 retention rate was 86 percent.
- The overall grade-point average of "at-risk" students has risen appreciably.

External Recognition, Articles, and Presentations

- The program's creator received a National Academic Advising Association (NACADA) Pacesetter Award for commitment to advising and for the success of efficient and economic computer programs that have promoted student success.

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Faculty Advising Program

With just two counselors to serve 2,500 students, the Houston Community College System—Southeast College (Texas) was concerned about advising students adequately regarding academic transfer programs. The college implemented an academic faculty advisement system in which faculty would donate time during fall, spring, and summer semesters. Considerations in developing this program included: purposes, practices, and procedures for the ongoing faculty advisement program; defining faculty advising roles and responsibilities; equitable work load issues; the role of counseling; assigning students to advisors; and the appointment of a faculty member to serve as the faculty advisement chairperson.

Each faculty member made available one hour weekly to advise academic transfer students. Advising hours were counted towards fulfillment of contractually required office hours. To ensure a fair work load, each department head submitted an equal number of faculty advisors, available for both day and evening counseling.

Because of the mobile nature of Southeast College students and because over 50 percent are employed either part- or full-time, a modified walk-in advising system was created. For several weeks, beginning just after midsemester in the spring of 1994, students were encouraged to meet with faculty advisors on a walk-in basis. In order to make students aware of the newly available counseling, a list of advisors, their academic disciplines, and time availability was publicized throughout the campus: in classrooms; in the library; in the student lounge; on bulletin boards; and in faculty, counselor, and administrative offices.

Benefits to the College

- The college was able to offer more services to students.
- The productivity of department heads, faculty, and counselors has increased.
- Preliminary studies indicate improved student retention.
- Enrollment increases in academic programs range from 6 to 30 percent.

External Recognition, Articles, and Presentations

- The faculty advising chairperson was recognized at the Houston Community College System annual retreat in both 1994 and 1995.

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Grades by Telephone

Santa Rosa Junior College (California) has deployed a computer-based telephone system that provides students direct access to their semester grades. The grades-by-telephone service is an optional service in the college's "Telephone Link to College: TLC Express" which also includes a registration service. The primary purpose of the grade service has been to provide a convenient and timely report of student grades at the end of each semester. A second important purpose has been to reduce the budget expense of grade mailers, postage, and staff time.

Students are given an individualized security code that enables them to access their grade records. The voice response will indicate each course grade, semester units completed, semester grade-point average, cumulative units, cumulative grade-point average, and updated academic status. At the conclusion of the dialogue, the student may request that a grade mailer be sent to his or her home address. Requested mailers are automatically sent out daily. Any student who is classified as being on academic probation or dismissal is automatically sent a grade mailer as well.

Benefits to the College

- Students report that the grade service is convenient and easy to access.
- Students receive semester grades faster than by mail.
- The number of grade mailers has been reduced by 80 percent, saving about $14,000 in postage and materials costs plus the equivalent of approximately two weeks of staff time.
- Because the college uses existing computerized telephone hardware and telephone lines there was no start-up equipment expense.

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Job Listing and Referral Hotline

At Manchester Community-Technical College (Connecticut), employment information is literally a phone call away with the college's new Job Hotline. Having used voicemail technology to improve the delivery of services, the college now offers a 24-hour job listing and referral service. The Job Hotline enables employers to list current job openings by phone at no cost, and allows students to listen to those openings as described by the employer.

A major improvement on the old "job board," the hotline has an automated menu allowing employers to update job listings even when the college's Career Services office is closed. Students and alumni can explore current employment opportunities without leaving home. Over 1000 employers have registered to use the hotline offering full-time, part-time, and seasonal employment options linked to the college's academic curriculum.

Benefits to the College

- The system has received more than 28,000 calls since March 1994.
- An automated menu allows callers to register to use the service, access current job information, and post or delete positions or delete previous employment listings once filled.
- Free from thousands of routine phone calls, the staff is able to deliver more services to students, alumni, and employers.
- Mail and paper costs have been reduced.
- Start-up costs were minimal.

External Recognition, Articles, and Presentations

- The college has had other community colleges and universities visit the institution for an overview of the Job Hotline system.

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One-Stop Advising, Assessment, and Registration

Aided by a grant from the BellSouth Foundation, Columbia State Community College (Tennessee) established a one-stop center in order to advise, assess, and register students more efficiently.

The registration and advising process had been lengthy and inconvenient for students, faculty advisors, and administrators. Often, student assessment would not be completed prior to registration.

With implementation of the one-stop system, all records are now computerized, and students are sent directly to the advising center where they are assessed, advised, and registered in one meeting. At the new center, which accommodates five advisors, students sign in electronically and print out their own records before conferring with their advisors. The center houses a career counseling system, transfer catalogs, and other helpful materials. A master advisor, trained to access individual records and aid students, is always available at the center.

The center is staffed primarily with volunteers; only the director and a secretary are salaried employees. Advisors are full-time faculty and staff who work three hours weekly in exchange for three hours of office time or relief from committee assignments. A release-time option is also used in some circumstances.

Benefits to the College

- Mailing costs, as well as faculty and student time, have been dramatically reduced now that students receive results during advising sessions instead of by mail.
- The number of students completing assessment tests prior to starting their studies has increased by almost 30 percent.
- Error rates on the Tennessee Board of Regents Remedial/ Developmental Retention Reports dropped by 30 percent after the center had been in operation for a full year.
- Despite level enrollments, there has been a 5 percent increase in graduates after the first full year of operation.

External Recognition, Articles, and Presentations

- The program's master advisor was the only two-year-college advisor to be recognized as an Outstanding Advisor by the National Academic Advising Association (NACADA) at its 1994 national conference.
- The program is being studied by two Tennessee community colleges interested in implementing a similar system.

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Student Mentoring Program

The Nassau Community College (New York) mentoring program, now in its fifth year, was established to enhance the retention and academic success of culturally diverse students. Volunteer administrators, faculty, and staff who serve as mentors are paired with entering students, and participate in a series of special activities and projects designed to help the students establish a sense of community and adjust to college life. A total of 258 students and 122 volunteer mentors have participated in the program.

A random sample of freshman students is selected for the program. Selections are based on decile or high school class ranking and ethnicity. Mentors are recruited, selected, and participate in an intensive and ongoing training program.

Despite a limited budget, the mentoring program has proven quite successful. The program has operated primarily on existing college resources and a $4,700 grant. A full-time faculty member on sabbatical acts as the program director.

Benefits to the College

- Eighty-eight percent of program participants returned to the college the following semester, compared to 79 percent of all other freshman students.
- The retention rate of underrepresented students who participated increased 12 percent as compared to underrepresented students as a whole.

External Recognition, Articles, and Presentations

- The program was cited in the *Mentoring Guide for Community Colleges* in 1995 as one of five successful community college mentoring programs in the nation.
- "Mentoring on a Shoestring," International Mentoring Association, 6th Annual Conference, 1993.
- "Enhance Retention through Mentoring," American Association of Community Colleges, Portland, Oregon, 1993.
- "How to Utilize Your Institutional Resources to Best Support Your Mentoring Program," 7th Annual Conference, International Mentoring Association, 1994.

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Team Approach to Admissions and Registration

In order to stretch limited resources, Lakeland Community College (Ohio) streamlined admissions and registration processes. Work began with the formation of three teams: admissions/registration, financial aid, and community education. Each team consisted of a department manager and four to six employees. Outside facilitators encouraged creativity and new approaches. Each team was given four hours of training, beginning with the rationale for the project and continuing with quality management techniques such as brainstorming, process mapping, and understanding and creating flowcharts. Guided by the facilitators, the teams met two hours weekly for six weeks during which time they defined current processes, identified bottlenecks and redundancies, and brainstormed for solutions.

Once current processes and potential improvements had been mapped, stakeholders throughout the college were invited to meet and review each team's recommendations. By design, team managers were not present. Instead, team members fielded all the questions from stakeholders who appreciated the opportunity to openly discuss problems and expressed keen interest in continuing the dialogue to resolve issues.

Results of this six-week program included a comprehensive set of flowcharts detailing work processes and a report identifying issues that need to be addressed in order to optimize work flow.

Encouraged to creatively resolve issues and increase efficiency, one team proposed a new way to process financial-aid applications. A pilot project implemented in January 1996 makes use of the Electronic Data Exchange which sends and receives corrected data electronically. Now, new students can have their aid applications approved and processed within two to three days. All paperwork can be completed during a single visit to the financial-aid office.

Benefits to the College

- The feasibility of consolidating credit and noncredit registration processes has been recognized.
- Crossfunctional teams have been formed to revise and streamline forms and eliminate duplication.
- Fifteen areas for improvement have been identified; solutions can be implemented immediately and at low cost in terms of funds and personnel.

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Telephone Information Center

Faced with rapid population growth, Columbus State Community College (Ohio) faculty and staff sought to continue providing timely, professional, and personal responses to student inquiries. The Telephone Information Center (TIC), founded on technology, accurate information, and the human touch, was established to ensure excellence in customer service.

TIC representatives are trained extensively to answer general admissions-related questions, schedule admissions and advising appointments, provide financial-aid information, and process orders for catalogs and other information provided by the college.

Students can also register themselves for classes or make changes to their schedule by phone—students call an average of four times each quarter to adjust their schedules. Other transactions related to the registration process include making address changes, entering selective service numbers, and ordering registration materials. If preferred, these services can also be provided by a TIC representative.

Since its inception, the TIC has expanded its service areas to include the cashier's office—TIC staff can process fee payments made with a credit card. Calls to the bookstore are transferred to the TIC during peak periods. The Business and Industry department also uses TIC services to register adults for noncredit classes.

Benefits to the College

- The TIC receives 800 to 1,000 calls daily; during peak periods, more than 2,000 calls are logged per day. The highest number of calls ever processed in one day is 4,200.
- Daily, the average number of calls handled by a full-time representative is 190; the average for a part-time representative is 70.
- The average waiting time for a caller is under two minutes.
- The average call lasts 2 1/2 minutes.
- Only 10 percent of incoming calls have to be transferred; the other 90 percent are handled by TIC representatives.

External Recognition, Articles, and Presentations

- Article published in College Services Administration, *Journal of The National Association of College Auxiliary Service*, June 1995.

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Undecided Majors and Academically Troubled Students

In 1991, after an extensive evaluation of advisement procedures, Brunswick College (Georgia) created an advisement center. Faculty and administration report that the establishment of the advisement center is the most positive step the college has taken toward increasing student success and retention.

The center provides academic advising and planning, career development, and transfer advising as well as support for students in academic trouble or who have undecided majors. Academic progress is closely monitored, and advisors work with faculty and student-services personnel to encourage student success. The center also provides faculty advisors with advising information and support.

The center is supervised jointly by the academic vice president and the vice president for student development services and coordinated by a standing committee. Staffed by faculty and student-service personnel who volunteer from one to six hours a week, the center is open days on a drop-in basis or by appointment and evenings during peak periods such as registration.

Benefits to the College

- More than 3,500 students have used the advisement center since it opened in fall 1991.
- Students consistently rank the center's effectiveness highly (with an average of 93 percent) and its supports as "superior."
- Start-up costs for the advisement center amounted to $2,000; it now operates on an annual budget of less than $5,000.

External Recognition, Articles, and Presentations

- The advisement program at Brunswick College was selected as one of only eleven National Academic Advising Association 1995 Certificate of Merit Award honorees.

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Raritan Valley Community College (NJ) 19
Red Rocks Community College (CO) 17
Roane State Community College (TN) 23
Santa Fe Community College (NM) 8
Santa Rosa Junior College (CA) 11, 31
South Devon College (United Kingdom) 28
South Suburban College (IL) 3, 4
Springfield Technical Community College (MA) 5
Trident Technical College (SC) 15
Ulster County Community College (NY) 9

Notes

League for Innovation in the Community College

The League for Innovation in the Community College is a nonprofit educational consortium of resourceful community colleges organized to stimulate experimentation and innovation in all areas of community college development. Founded in 1968, the League seeks to serve as a catalyst, project incubator, and experimental laboratory for community colleges throughout the United States, Canada, and other countries.

The Alliance for Community College Innovation

Created by the League for Innovation in the Community College, the purpose of the Alliance for Community College Innovation (ACCI) is to make innovation a continuing priority on the agenda of community colleges. Members of the Alliance will be involved in reviewing and exploring current issues through publications, conferences, and projects.

Benefits to Members

Benefits for Alliance members include the following:

Publications

Members receive a series of publications prepared and distributed by the League, including 25 copies of *Leadership Abstracts*—a monthly series on dimensions of leadership and issues of importance to community college leaders; a subscription to *Catalyst*—the biannual newsletter describing Alliance activities, ACCI member innovations, and quarterly survey results; *Signals*—the newsletter of the League's Information Technology Initiative; *Best Practices Monographs*—periodically published monographs detailing best practices in Alliance colleges on selected topics; *Monographs, Guidelines, and Special Reports*—other periodically published documents describing the results of project activities and task forces. ACCI members receive these publications free and a special discounted rate for additional copies.

Conferences

Members receive an unlimited amount of $50 reduction coupons for conference registration fees for faculty and staff attending League conferences, including the following annual events: "Conference on Information Technology"—the only major, annual, international conference on applying information technology in community colleges; "WORKFORCE 2000"—the only annual, international conference on the role of community colleges in workforce training and economic development; and other conferences on selected issues.

Other League Activities

ACCI presidents are surveyed quarterly on key issues for leaders, and results are mailed to all member colleges. ACCI members are given priority consideration for inclusion in various projects and activities of the League, including participation in showcases, conferences, receptions, publications, surveys, review functions, and other programs.

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